*In Memory of*

# Charles Embree Thorne

**1846---1936**

Director

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Administration Circular No. 3

DR. CHARLES E. THORNE

Died February 29, 1936

Director of Experiment Station
1887-1921

# Dr. Charles Embree Thorne

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|---|---|
| Born in Greene County, Ohio, | October 4, 1846 |
| Reared on a farm, | |
| Attended Michigan Agricultural College, | 1866 |
| Attended Antioch College, | 1868-1869 |
| Honorary Master of Science in Agriculture, The Ohio State University, | 1890 |
| Honorary Doctor of Science, College of Wooster, | 1926 |
| Married Viola J. Hine, | May 10, 1871 |
| Farm Manager, The Ohio State University, | 1877-1881 |
| Associate Editor, Farm and Fireside, | 1882-1887 |
| Director, Ohio Agricultural Experiment Station, | 1887-1921 |
| Chief in Soil Fertility, | 1921-1923 |
| Consulting Chief in Soil Fertility, | 1924-1936 |
| President, American Society of Agronomy, | 1914-1915 |
| President, Association of Agricultural Colleges and Experiment Stations, | 1915-1916 |
| Author of *Farm Manures*, | 1913 |
| Author of *Maintenance of Soil Fertility*, | 1930 |
| Author of thirty-four Scientific Bulletins, thirty-five Annual Experiment Station Reports, and numerous articles of a popular nature | |
| Died, | February 29, 1936 |

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*"That they may rest from their labors;*
*And their works do follow them."*

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**Thorne Hall. Named in honor of Dr. Charles E. Thorne. Erected in 1924**

# In Memory of Dr. Thorne

Dr. Thorne has undoubtedly contacted and helped more farmers of Ohio in his thirty-four years as Director of the Ohio Agricultural Experiment Station than any one who has ever served the State.

While the Ohio Station was organized some five years before the passage of the Hatch Act, it had a very meager and uncertain existence up to that time. With the passage of this Act and the Federal appropriations which it made available, the Station took on new life, and one of the first acts of its Board of Control was to elect Dr. Thorne Director.

When Dr. Thorne was made Director of the Ohio Station it had a scientific staff of six members. When he resigned in 1921 he had built up a staff of fifty members.

From an institution which had funds available for research work amounting to $16,000 per year when he took charge, he developed confidence in the value of its work to a point where appropriations amounting to $355,000 per year were made available for the Station's work.

The quality of Dr. Thorne's work is recognized the world over, wherever agricultural research is appreciated.

The Ohio Experiment Station is pleased to have the Chief of the Office of Experiment Stations of the United States Department of Agriculture and five citizens of Ohio who have long been associated with Dr. Thorne contribute an estimate of the value of his services to scientific agriculture and to the welfare of the State and community.

These men are:

Dr. James T. Jardine, Chief, Office of Experiment Stations.

Dean-Emeritus Alfred Vivian, for many years connected with the College of Agriculture of the Ohio State University.

Dean John F. Cunningham, of the College of Agriculture, who has long been identified with Ohio agriculture in various capacities.

Mr. Louis J. Taber, for many years Master of the Ohio State Grange and now Master of the National Grange.

Mr. W. W. Farnsworth, a prominent Ohio horticulturist, an officer of the Ohio Farm Bureau, and former State Senator.

Rev. George N. Luccock, D. D., long pastor of Westminster Presbyterian Church, Wooster, which Dr. Thorne attended.

These several contributions follow.

## From the Office of Experiment Stations of the United States Department of Agriculture

On behalf of the Office of Experiment Stations, I want to utilize this opportunity to pay tribute to the unique and outstanding services of Dr. Thorne to the Ohio Experiment Station and to agricultural research. He was, I am told, the last survivor of the original 1885 convention of representatives of the agricultural colleges and experiment stations and one of the few remaining of the station directors who took office on the passage of the Hatch Act of 1887. Not only, however, was he a pioneer in the field but an able and constructive administrator, a careful and thorough investigator of soil fertility problems, and a leader of wide and enduring influence. Few men have done more to make the experiment stations both scientifically sound and practically useful.

*James T. Jardine*

# Dr. Thorne's Contribution to Agricultural Research

When the history of the first century of agricultural research in America shall be written, there will be found in the first rank of those who have made notable contributions to the science of agriculture the name of Dr. Charles Embree Thorne. His work will be increasingly appreciated as the years go by because his own major line of research was begun after a long look into the future and, also, because it dealt with the most fundamental thing in agriculture—the maintenance of the fertility of the soil. In Dr. Thorne, an exceedingly practical point of view was combined with a rare capacity for patient, painstaking research. Few men have had the courage to begin such research projects as his with full knowledge that years of patient waiting would be required before results of any great significance could be expected. American agriculture can never be too thankful that Dr. Thorne had this long distance vision of the problems that would face the farming of today and of the future, because the results of his experiments point the way very definitely to that conservation of our soil resources which is being so strongly emphasized at the present time. Without his research we should have very little basis for a rational program of soil conservation or soil improvement.

In the minds of most men who are interested in scientific agriculture, the name of Dr. Thorne is associated, first of all, with his field plot experiments in soil fertility. He was the first man to make extensive use of the field plot method of agricultural research. He was, also, the first to appreciate the need of frequent repetitions of check plots in order to prevent errors that might otherwise enter into the calculations of results, due to soil variations within the area devoted to the experiment. Equally original was his method of providing as many ranges of plots as there were different crops in the rotation used in the investigation, thus subjecting each crop to the same annual climatic variations. This method, of having each crop of the rotation appear every year, increased many times the value of the data accumulated during the period that these experiments have been in progress. Today the data acquired through his extensive series of field plot tests are our richest source of information regarding the effect of fertilizers on the standard farm crops.

Early in his work along this line, Dr. Thorne realized that there might be a considerable variation in different types of soils in their response to fertilizers, and he sought the opportunity to establish field plot tests upon as many as possible of the different types of soil found in this State, with the result that Ohio has today what is, undoubtedly, the most elaborate system of field plot research work to be found anywhere in the world. The enormous benefit of this work to this State (and to other states as well) would be impossible to calculate.

Unique among the field tests originated by Dr. Thorne is the series of plots devoted to a study of the effect of reinforcing stable manure with various chemical fertilizing materials, notably with different forms of calcium phosphate. Probably no data gained from any field plot experiments have been so much used and so often quoted, either in this country or abroad, as have the results obtained from this significant field project in soil fertility. The fore-

most teachers of soil fertility in this country, especially, have made frequent use, in the class room and in their writings, of the data gathered from these experiments. These results have also formed the basis of many new pieces of research, stimulated by the remarkable returns from phosphated manure obtained in this field test. It would be no exaggeration to say that the benefits accruing to the state of Ohio from the application of the knowledge obtained from this one set of field plots has amounted to more than the entire cost of the Ohio Experiment Station; what the benefits might have been if all farmers had made use of this knowledge, one hesitates even to surmise.

The possibilities of applying the data accumulated from the field plot work originated by Dr. Thorne have by no means been exhausted. For years to come these data will be reviewed again and again by students of soil fertility, and new applications will result therefrom and new lines of research will be suggested and stimulated by each successive study of this vast fund of information.

While Dr. Thorne's own line of research was primarily in soil fertility, he had a broad practical knowledge of agriculture and possessed such an ability to foresee problems in other fields that he easily became the ideal director of research. As rapidly as funds permitted he added to his staff well chosen research men in lines of agriculture which he considered to be of importance to the state of Ohio. In some cases these men were chosen to carry on research work in fields in which he felt sure that information of vital importance could be acquired. He was among the first to sense the fact that much could be learned regarding the adaptation of varieties of standard crops to types of soils; he felt that there was need of trying out new varieties and that it might be possible to improve existing varieties. He also suspected early in his career that the mineral elements of feeds might be of more importance than was generally believed in the early days of agricultural science, and the Ohio Experiment Station was among the first to conduct research upon the function of the mineral elements in feeds. Part of his strength as a director of research was due to the fact that when a man was appointed on his staff and undertook an agreed upon line of research, he was given free rein to develop the problem in his own manner and with friendly encouragement from the Director.

Not the least contribution that Dr. Thorne made to science was his splendid example to the researchers of the younger generation. At a time when everyone felt the hurry of the times and the demand for immediate results, and when the urge "to make a showing" and to rush into print was dominating much of the research work of this country, he steadfastly refused to be forced into premature conjectures and statements. He tried to discover the truth and not to prove a theory. To him as to all genuine research men, to withhold "unfavorable" data was as dishonest as any other kind of misrepresentation. Many a younger man has been inspired by his example to try to measure up to the ideal "seeker after truth" and to be satisfied with nothing less than the whole truth, no matter how long the search might last.

It was Dr. Thorne's strong personality, his determination, and persistence in the face of many discouragements, alone, that carried the Ohio Experiment Station through those trying early years, and today the Station stands as a monument to him and his lifelong devotion to a work that he loved.

*Alfred Vivian*

# Dr. Thorne and Ohio Farmers

The field of agricultural research lost a stalwart figure in the passing of Charles Embree Thorne. His achievements as an individual research worker, his attainments as an analyst of the results of others, and especially his generalship in organizing and outlining projects having a direct application to the field of practical farming brought him recognition that was world wide and won for him the appreciation of two great national organizations of American agricultural scientists who elevated him to their respective presidencies.

Dr. Thorne's memorial is set up in the records of the Ohio Agricultural Experiment Station from the time that he assumed the directorship in 1887 until his retirement in 1921. During that long period there was no time when he was not pressing the many activities that have meant so much to the agriculture of Ohio and of the world. There was no letup in the constancy of his application. His work was his life.

It was my privilege to know Dr. Thorne for forty years. I first came into contact with his influence and his personality when a mere boy. From the first time that I met him until that day last autumn when I had my last visit with him, I was impressed with his sincerity, his indefatigable spirit, his zealous quest for general truth, and his persistent search for facts of value to farmers. I first met him in the field—a man with hair and beard raven black; I last met him in his home office, platting a chart of years of research having to do with soil fertility—a man of 89, hair and beard thin and gray, but with the same fire of attainment and the same eagerness for constructive progress that had prevailed through the years. Here was one of America's great farm crusaders still functioning, never having accepted the call to retirement but facing the sunset with a clear eye and undaunted courage and optimism.

On the occasion of his twenty-fifth anniversary as Director of the Experiment Station a dinner was given in his honor and a number of addresses followed. It was my privilege at that time to speak for the young men of the field of agriculture and it was in the spirit of a pupil kneeling at his master's feet that I attempted to state what his work and words meant to the younger generation. As I recall the occasion I believe that reference was made to the fact that upon the foundation laid by the early workers in the field of agricultural research those of us who followed were privileged to build safe superstructure, in the knowledge that it would be as a house built upon a rock. The journey of those who were to follow was to be made much easier and vastly safer because the trail had been blazed and in many cases the highway was paved by the searching explorations that he and his generation had provided.

Dr. Thorne was a man of courage. He was not afraid to change his mind when he found that the facts so warranted. He was a man of vision. As long as twenty-five years ago he actively advocated what is today regarded as a great national project, backed by public funds of tremendous proportions. He declared then that it would be well for Ohio agriculture if a large percentage of the land under cultivation were to be returned to grass or forest and the same amount of work given to the cultivation of the remaining acres. He

also declared that it would be a godsend if all of the old fashioned land rollers were to be dropped into the middle of Lake Erie. Pressing the soil with a smooth surface, he said, induced such evaporation of moisture that succeeding crops suffered.

Throughout his working life he preached the fundamental public value of soil fertility. Toward the preservation of this great national asset, and at the same time the profitable operation of business farming, he directed his constant thought.

In his executive capacity he was a strict disciplinarian. His motto was a fair day's pay for a fair day's work. There were some who might doubt the wisdom of some of his methods in organization and detail operation, but none doubted his sincerity or his effectiveness personally or of his organization collectively. He started with the first days of experimental work as organized under the Hatch Act of 1887 and lived to see the system of American experiment stations grow to great effectiveness and to win the firm support and high esteem of the farming public. The worth of his contribution to this valued result was second to none.

In addition to his example as a master research worker, his personal life was an inspiration to the younger generation. He hated sham. He abhored deceit. He typified industry and steadfastness. He was a wise counsellor. He was not given to flattery but was ever eager to express appreciation of a bit of good work. There were times when he and his institution needed support and help from the farming public, from the farm press, from other leaders in the field of agriculture. In accepting such help he always did so in the interest of the work and its value to farm folks. When the problem was solved he was quick to thank those who had helped in its solution.

He dignified his vocational field through his fine personal bearing and his helpful attitude. In the early days of Farmers' Institutes he contributed his share of the hard work and the difficult assignments that fell to the speakers of that period, when travelling was difficult and accommodations were not always the best. He was one of that little band of Ohio evangelists who established a friendly contact between the field of science and the field of farm practice. His like we shall not see again because the need for a similar type of labor no longer exists. New frontiers call for a different type of pioneering, but the spirit of the men of Dr. Thorne's day may still carry on in the newer fields.

In the words of Mr. Valiant—for the truth in *Pilgrim's Progress* we may repeat for our late friend—"My sword I give to him that shall succeed me in my pilgrimage, and my courage and skill to him that can get it."

*John F. Cunningham*

# Director Thorne and Rural Organization

Few men with as quiet a personality and as retiring a disposition as Director Thorne have ever left a more lasting impress on state and national agricultural life. The scientist, the student, and the philosopher are usually modest. Their greatness lies in the results of long and painstaking effort rather than in some great discovery or flashy or showy accomplishment. Such was the contribution of Charles E. Thorne.

I first met Director Thorne when as a mere boy I attended a Farmer's Day at the Experiment Station about the beginning of this century. After the Director had explained the soil fertility experiments, some of us got out our note books and wanted to know if we could make a definite statement as to what these experiments proved. The Director replied, "We could not do that because they have only been going on about a quarter of a century, and that is not long enough for definite proof." To some of us, twenty-five years of painstaking work in soil fertility have seemed long enough to prove anything, but, to the scientist, it may only be the beginning.

Director Thorne placed emphasis on the fundamentals of prosperous agriculture: A fertile soil, an intelligent, patriotic farmer and his family tilling the land, and sound and permanent methods of agriculture that would maintain fertility, increase productivity, and at the same time provide an honorable living for those upon the farm. Thus, with his belief in education, the use of science in solving farm problems, and good farm practice, he also believed that organization had a rightful place in the development of a better rural life.

Our Experiment Station and the Ohio State Grange have gone hand in hand almost from their very inception. At the very first Session of the State Grange, emphasis was placed on education and better facilities for the farmer. A few years later, the Grange advocated increased appropriations for the Agricultural College and better rural education. Research was in its infancy when the National Grange was founded. There were very few Experiment Stations on the continent. In 1880, officers of the Ohio State Grange advocated the establishment of an Experiment Station separate from the Agricultural College. In 1882, Colonel J. H. Brigham, a member of the Ohio Senate and in the same year elected Master of the Ohio State Grange, secured the passage of legislation creating our present Experiment Station at Wooster. He was requested by the Governor of Ohio to suggest names for the first Board of Trustees, and on this first Board was placed an officer of the Ohio State Grange and representatives of other agricultural activities in the State. From that day to this, there has been an officer, a Master, or a Past Master of the Ohio State Grange serving on the Board of Control of this great nerve center of fact finding, research, and progress. No man has made a greater contribution to the sound thinking of rural organization than has Director Thorne. He gave emphasis to the type of agriculture that would create good farmers, clearer thinking, and higher ideals in rural life.

In the mechanical, scientific, and business progress that has taken place in agriculture, Director Thorne was always the advocate of advanced, progressive, yet sound thinking. He was never looking for the magic wand or a mysterious cure-all. He knew that mother nature was slow yet just in her methods of

soil building and readjustment. He also recognized the great dangers of bad agriculture or a type of farming that did not preserve for ourselves and our children the fertility, the humus, the water content, and the workability of our soils. The prevention of erosion, the use of legumes, and the practice of conservation that now attract the Nation were advocated by Director Thorne even before some present-day leaders were born. Consequently, much of the progress of the present and many of the dangers we seek to correct were pointed out by him during a long, busy, and useful life.

Thus, Director Charles E. Thorne, who served as the head of our Experiment Station at Wooster from 1887 to 1921 and who then served as Director Emeritus until almost the time of his death, was constantly in touch with the leaders and workers not only of the Ohio State Grange but of all other rural activities as well. Those of us who knew Director Thorne admired his character and his lofty ideals. We respected his scientific and agricultural judgment, and we appreciate the contribution he has made not only to better agriculture in Ohio but to rural life everywhere.

*L. J. Taber*

# From the Viewpoint of Horticulture

Dr. Thorne possessed the highly valuable and rather rare ability to combine the theoretical and the practical, the scientific and the commonplace.

He knew, by practical contact and operation, what were the needs of horticulturists in controlling their insect and fungous enemies and in properly and economically feeding tree, plant, and shrub. He learned this, not only by the many calls for assistance which came to him as head of one of the best experiment stations in the world, but he also learned it in his own orchards, greenhouses, and fields and those of his close friends. His great scientific and practical ability gave him the answer. However, he did not hasten to announce what he had discovered or hoped to discover. Rather, he tested it thoroughly on the fields, gardens, and orchards under his control, and, as a result, the foundation principles which he enunciated are, like his teachings in soil fertility, looked upon as being as much of a standard as is Webster's Dictionary.

His most active period of life came at a time when horticulture was just emerging from a condition of guesswork, chance, and superstition. He gave it support at a period when the many and increasing enemies were looked upon as a "mysterious dispensation of Providence" rather than as pests which man might successfully combat and which were included when the Creator viewed His work and pronounced it "good" but over which He gave man control and dominion.

The impetus which Dr. Thorne gave to horticulture will always be held in grateful remembrance.

*W. W. Farnsworth*

# A Pastor's Appreciation of Dr. C. E. Thorne

It is one of my most cherished memories that it was given to me to be Dr. Thorne's pastor. When I came to Wooster as pastor of the College Church, while his wife and their son, Brooks and his wife, were members of Westminster Church, Dr. Thorne was a Quaker adherent of it. However, he could not have been more faithful and loyal had he been born Presbyterian.

In every Church there are souls of advanced attainment and finer quality. Dr. Thorne belonged to this group. The Quaker Church could have no finer exemplar of the best in its faith and life. He never ceased to be a good Quaker. To be a good member of any Church is to live in cordial relations with all other Christians. In all his contacts with other Christians, he met the Master's test of discipleship. Jesus said, with an emphasis strangely overlooked in much of the fellowship of Christians, "By this shall all men know that ye are my disciples, that ye have love one for another". Dr. Thorne's life was a continual manifestation of that kind of Christian love. Of course he was tolerant, but tolerance is too weak a word. He went far beyond tolerance in his invasions of good will into the lives of his fellow men.

To meet Dr. Thorne just once was to be impressed by the qualities of a gentleman. To meet him often and to come to know him with a measure of intimacy was to have a cumulative impression of rare attainment in the fine art of being a gentleman. His erect posture in his chair, his courteous attention, his ready response, his gift to a conversation out of the rich store of his mind, his swift sympathy toward any one in trouble, his intense interest in all that tended to make common life fuller and richer made him one of our outstanding Christian citizens—in the noblest sense a gentleman.

By a singular coincidence, this is written just as I have finished the latest book by one of the greatest living Quakers, Dr. Rufus Jones. The title of the book is *The Testimony of the Soul.* My mental picture of Dr. Thorne fits admirably into the frame work of that book. Dr. Jones' thesis is that the soul of man is his central self, that this central self is reciprocally related to the Central Stream of Life, that this self and this Stream, though not one, are inseparable, and that out of this reciprocal relation the soul has a testimony to give, not otherwise given, and indispensable to human progress. The author is concerned to get the emphasis away from abstract theory to joyous experience. This inner contact with God, however, is not to be conceived as cut loose and apart from service to other lives. Those who knew Dr. Thorne well will understand how he fits into that picture. This quotation from Dr. Jones might find its illustration in Dr. Thorne's life ambition and struggle: "The two most powerful present day trends of Christianity are a fresh revival of mystical religion and an awakened passion to carry Christianity into the fabric and tissue of the social life of humanity. Great mystics came back from their high moments with an imperative sense of their mission to the world." Every one knows of Dr. Thorne's passion to make his life a mission to the world within the field of his life study. Is it not fair to him to trace that passion back to its source in his mystic inner life?

As his pastor and friend, it was my privilege to be with him and to be a minister of Christ to him in two great sorrows of his life. One was at the death of his beloved wife. The other was at the tragic death of his beloved son. The last came to him when he was a very old man, when he was bowed by the infirmities of age. It is hard to find the word to describe the way he bore his grief. After picking among all the good words I know and one by one feeling their insufficiency, I come back to the word "gentle". His attitude toward what life and death had brought to him might have been bitter, resentful, or hysterical. Many are so affected by lesser troubles. His attitude toward what had so terribly hurt him was, as usual, gentle. He made no effort to hide his hurt. He yielded to no outburst of grief. In the expression of his face, in the quiet of his voice, in the clasp of his hand, one felt the flood of his grief but saw no sign of a storm. To account for all that gentleness in the buffetings of sudden horror, we must go tracing back again to that inner life. To him the Gospel was not an opiate to make people forget their grief. Neither was it a stimulant to incite the effort to appear brave, as if sorrow brought no sadness. The Gospel was rather a gift of grace to enable one to rise above it, to feel it and yet feel upheld in a mystery of peace, and strangely and sweetly comforted by a hope sure and steadfast, entering into that which is hidden in the great Beyond of God.

Because they so finely fit Dr. Thorne's spirit, so surely chord with my appreciation of him, I am constrained to close with these lines from the great Quaker poet:

"Immortal love, forever full, forever flowing free,
Forever shared, forever whole, a never ebbing sea.
How warm, sweet, tender even yet, a present help is He;
And faith has still its Olivet, and love its Galilee.
The healing of His seamless dress is by our beds of pain;
We touch Him in life's throng and press, and we are whole again."

*George N. Luccock*

**Administration Building**

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